



RESOURCE ALLOCATION IN THE
MEDICAL SERVICE MARKETS
IN ALBERTA

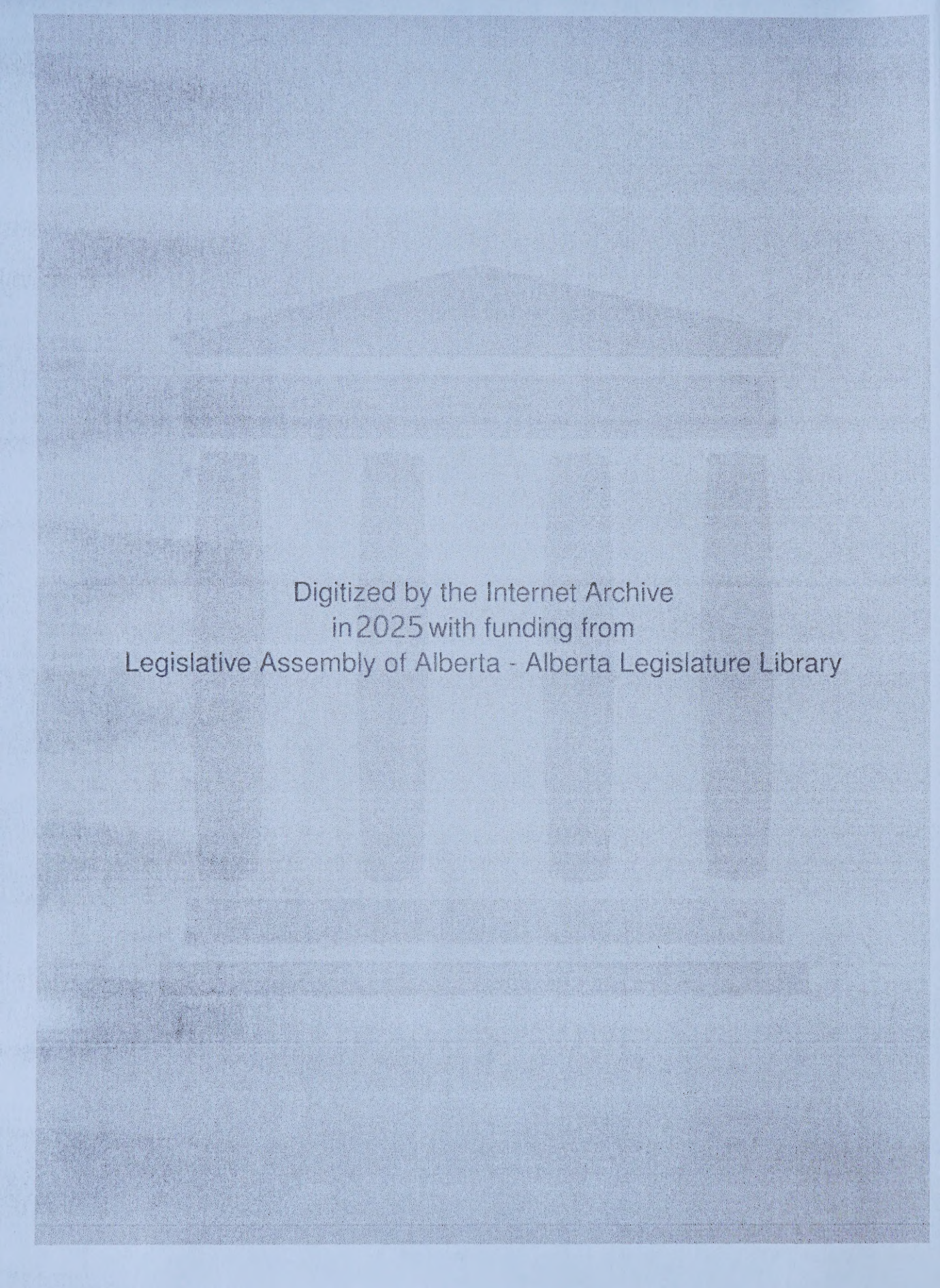
A Report Submitted to the
Alberta Health Insurance Commission

by

R.H.M. Plain
April 1971

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SECTION I

NATIONAL AND PROVINCIAL TRENDS IN EXPENDITURES ON HEALTH CARE SERVICES

INTRODUCTION

During the past thirteen years the provision and financing of health services in Canada has undergone a substantial number of changes. The implementation of the Hospital Insurance and Diagnostic Services Act and the Medicare Act serve as bench marks in establishing the change from minimal to maximal government participation in the financing of health services.

As matters now stand the financial obligations of the various levels are open ended in the sense that once the demand for various types of treatments are promulgated by consumers, medical personnel, para-medical groups and other vested interest groups, the federal and provincial governments are committed to meeting the increased expenditures under certain fixed joint cost sharing arrangements. The net result of this type of arrangement has been a rapid expansion in the quantity and type of health services offered to consumers coupled with a rapid escalation in the cost of providing these services.

NATIONAL TRENDS IN HEALTH CARE EXPENDITURES

These trends may be illustrated by noting that the total expenditure on personal health care in Canada has increased from \$1,047,403,000.00 in 1957 to \$3,924,667,000.00 in 1969--an increase of 375.0% or a compound rate of increase of approximately 11% per year. During the same period expenditure on physicians' services increased from \$271,795,000.00 to \$910,000,000.00; dentists' services increased from \$85,008,000.00 to \$231,450,000.00 while expenditures on drugs sold by retail pharmacies increased from \$103,230,000.00

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to \$270,106,000.00. These increases amounted to increases of 334.8, 272.3 and 261.6 percent. In terms of compound rates of growth these rates of increase amount to 9.7, 8.1 and 7.4 percent respectively, though, it should be noted that the rate of growth of expenditures on physicians' services has seemingly accelerated from 8% between 1957 and 1965 to approximately 10.7% between 1966 and 1969.¹

The major area of expenditures has been on hospital services (\$587,370,000.00 to \$2,513,111,000.00). This amounts to a 427.9% increase between 1957 and 1969--an 11.6% compound rate of increase. It should be noted that there has been a significant shift in the pattern of expenditure on personal health care expenditures. Between 1957 and 1959 the percentage distribution of health care expenditures shifted from (1) 56.1 to 64.0% on hospitals; (2) 25.9 to 23.2% on physicians' services; (3) 8.1 to 5.9% on dentists' services and (4) 9.9 to 6.9% on retail drugs. This pattern simply reflects the expenditure priorities established by the federal and provincial governments.

The foregoing expenditure trends are useful; however, health expenditures must be compared with overall changes in Gross National Product and the general increase in the Canadian population. Between 1957 and 1969 the GNP (the total current market value of all final goods and services produced within the nation in a given year) increased from \$32,907 to \$78,099 million (at current market prices) while the population of Canada increased from 16,677 to 21,089 million people. Total personal expenditures on health care increased from 3.18 to 5.03% of GNP during the same period. This means that

¹"Expenditures on Personal Health Care in Canada", Research and Statistics Memo, Department of National Health and Welfare, Ottawa 1970.

Revised July 29/71

there has been an increase of approximately 58.1% in the proportion of the nation's economic resources which were allocated to health care in 1969 as compared to 1957.

Table 1 indicates the rate of growth of GNP per capita. Between 1957 and 1969 GNP per capita increased from \$1,973 to \$3,703--a compound increase of approximately 8.1% per year. During the same period total personal health care expenditures per capita increased from 62.81 to 186.10--a compound rate of increase of 8.7%. Total personal health care expenditures per capita were composed of:

(1) an increase in expenditures on physicians' services per capita from 16.30 to 43.15 (a compound rate of growth of 7.7%);

(2) an increase in expenditures on hospital services per capita from \$35.22 to \$119.17 (9.0% per annum);

(3) increases in expenditure on dentists' services per capita from 5.10 to 10.97 (6.1% per annum); and

(4) an increase in expenditures on prescribed drugs per capita from 6.19 to 12.81 (5.8% per annum).¹

The net result is that in 1957 total personal health care expenditures amounted to 3.12% of GNP per capita--expenditures on physicians' services were .83%--whereas in 1969 total health care expenditures per capita amounted to 5.4% and expenditures on physicians' services amounted to 1.2% of GNP per capita.

PROVINCIAL TRENDS IN EXPENDITURES ON PERSONAL HEALTH SERVICES

The foregoing discussion was centered around a description of trends in national expenditures on personal health care. Recent information released by the Department of Health and Welfare has made it possible to

¹

These trends are depicted by Graphs 1 to 7.

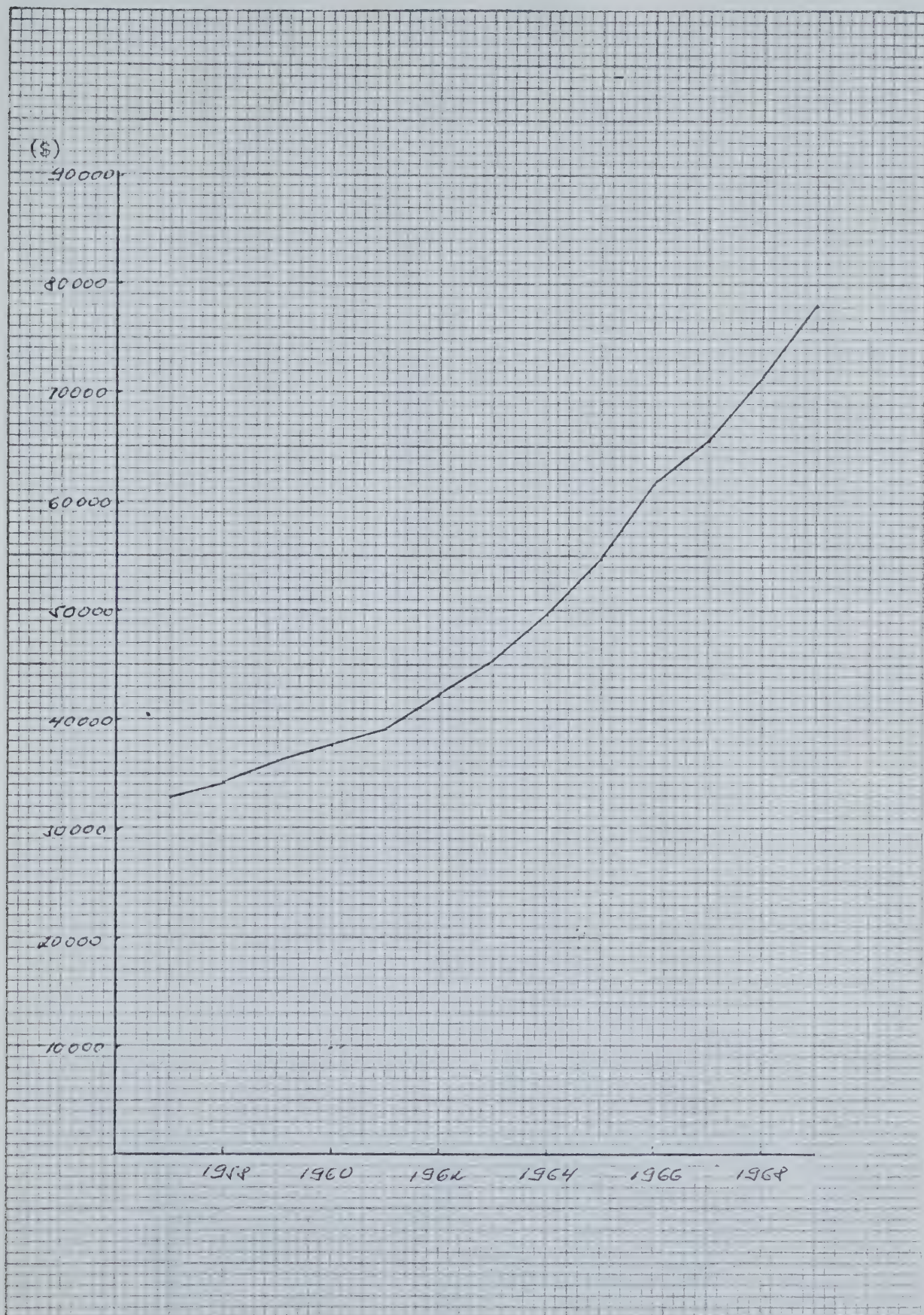
Table I: Population on July 1, and Gross National Product at market prices,
Canada 1957 - 1969.

Year	Population, July 1st (in thousands)	GNP (in millions)	GNP at market prices (per capita) (\$)
1957	16,677	32,907	1,973.2
1958	17,120	34,094	1,991.5
1959	17,522	36,266	2,069.7
1960	17,909	37,775	2,109.3
1961	18,271	39,080	2,138.9
1962	18,614	42,353	2,275.3
1963	18,964	45,465	2,397.4
1964	19,325	49,783	2,576.5
1965	19,678	54,897	2,789.8
1966	20,050	61,421	3,063.4
1967	20,441	65,608	3,209.6
1968	20,772	71,454	3,439.9
1969	21,089	78,099	3,703.3

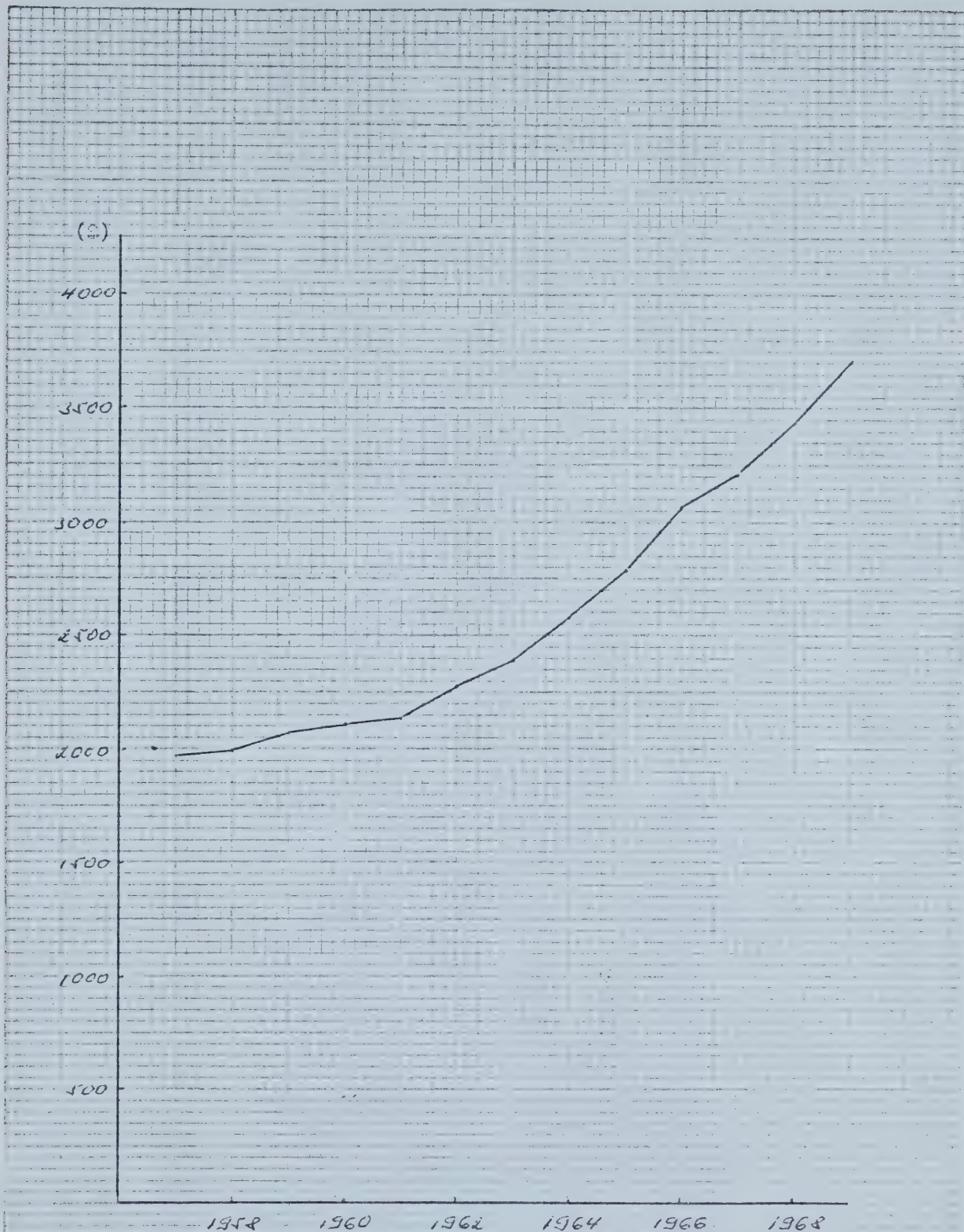
Source: Table 8, p. 12, "Research and Statistics Memo", Department of
National Health and Welfare, Ottawa, October 1970.

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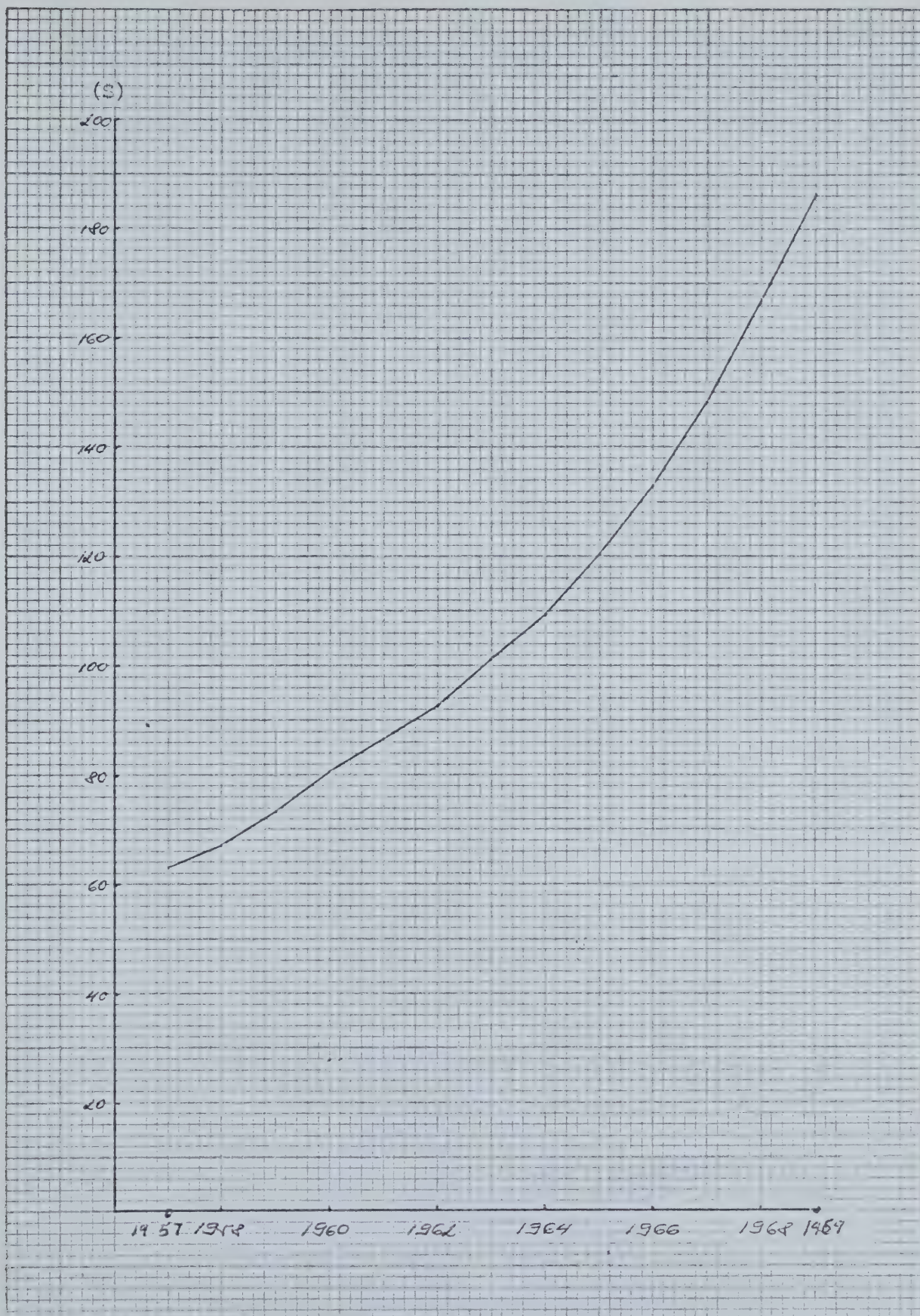
Graph I: Gross National Product at Market Prices in Canada 1957-69.



Graph 2: GNP per capita in Canada: 1957-69.



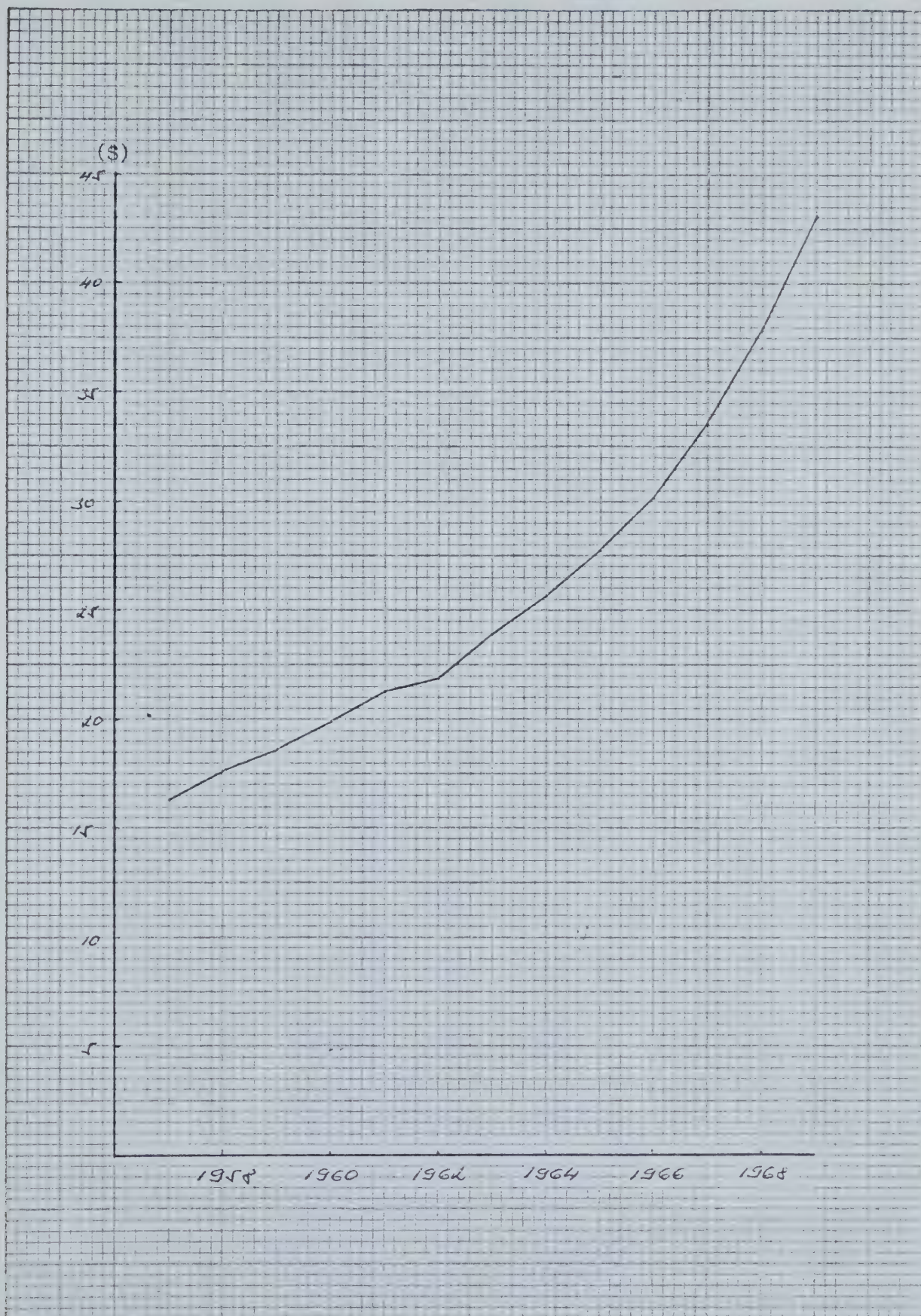
Graph 3: Total personal health care expenditures per capita in Canada (1957-69).



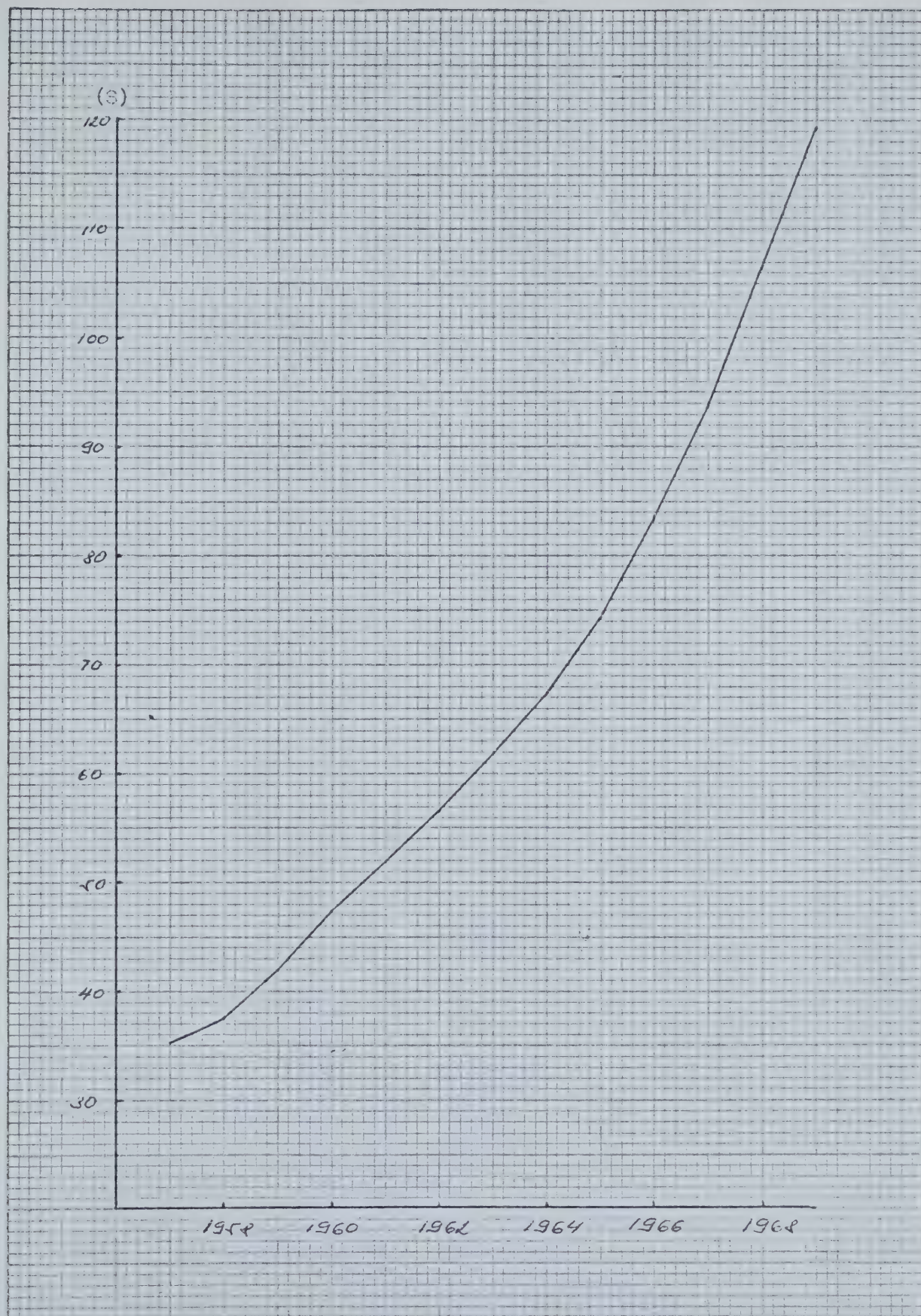
Graph 4: Per capita expenditures on physicians' services in Canada (1957-69).

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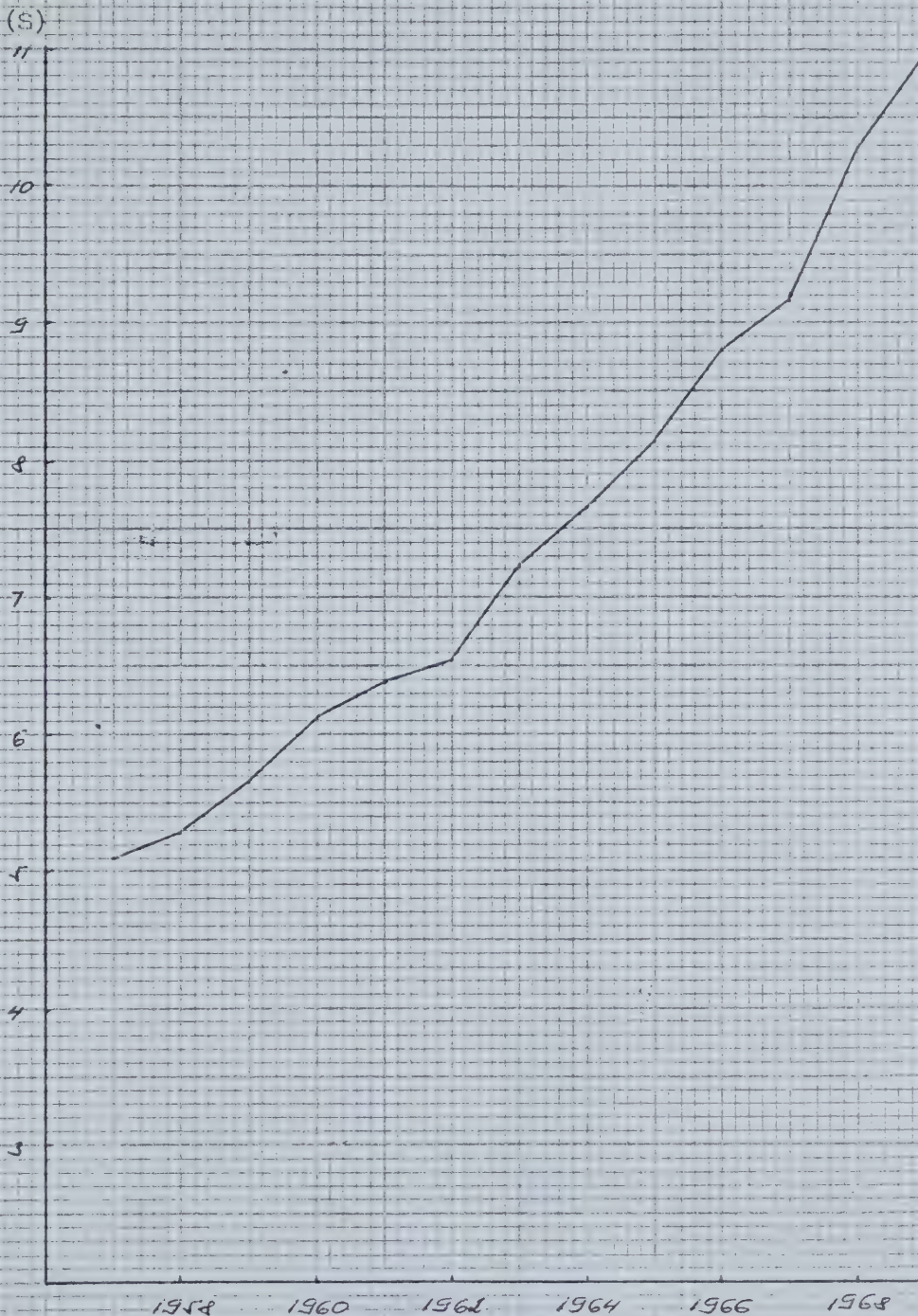
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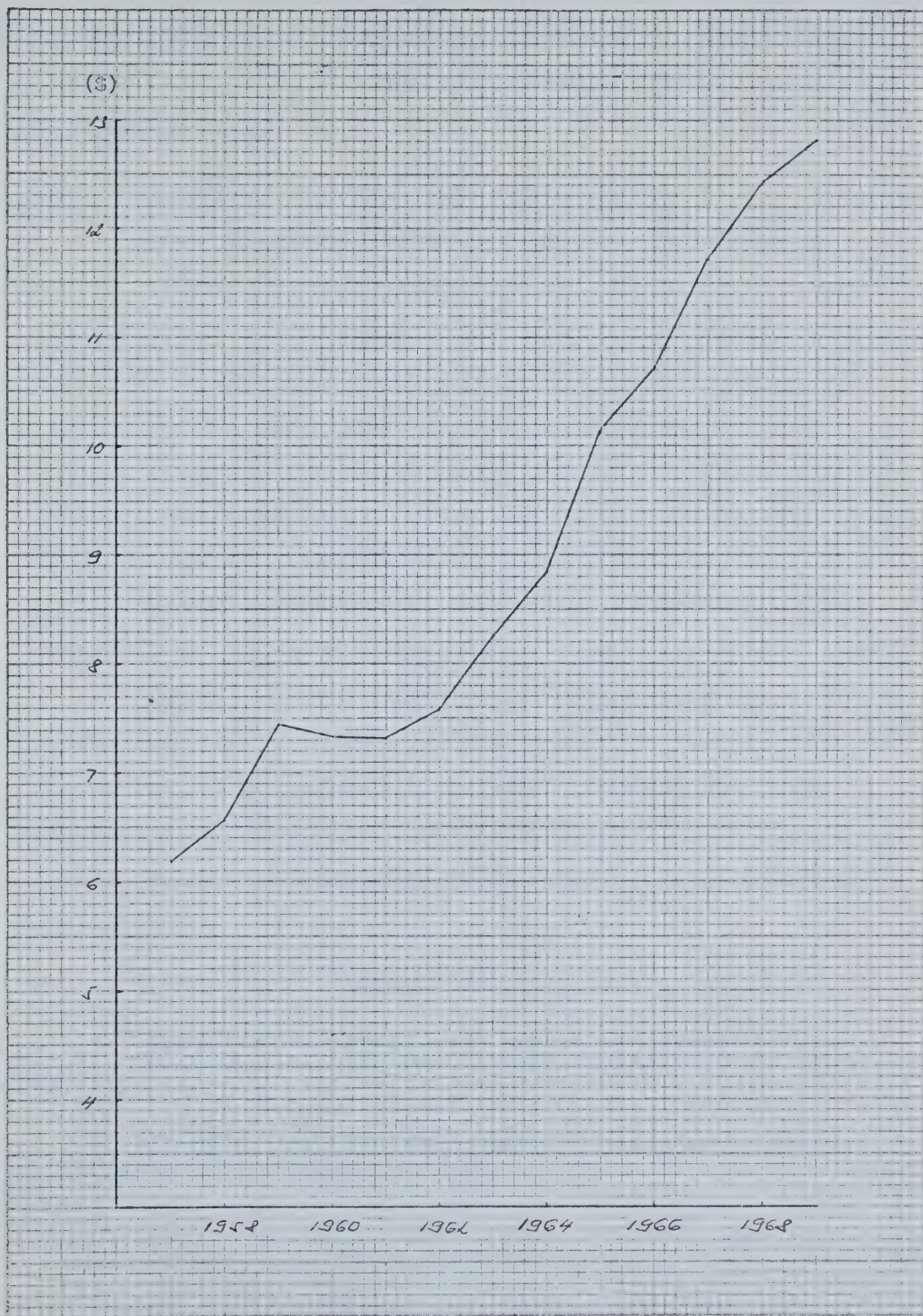
Graph 5: Total hospital expenditures per capita in Canada 1957-69.



Graph 6: Per capita expenditures on dentists' services in Canada 1957-69.



Graph 7: Per capita expenditures on prescribed drugs in Canada 1957-69.



carry out inter-provincial comparisons of the relative performance of all ten provinces between 1957 and 1969.¹ These comparisons will not be carried out in their entirety.

TRENDS IN EXPENDITURES ON PERSONAL HEALTH CARE IN ALBERTA

Between 1957 and 1969 the total expenditure on personal health services in Alberta increased from \$83.863 to \$311.016 million--an increase of approximately 371%. The average annual rate of increase amounted to 10.6% between 1957 and 1961; 9.3% between 1961 and 1967 and 15.2% between 1965 and 1969. On a per capita basis total expenditure increased from \$70.88 to \$198.99 per person over the period. The average annual rates of increase amounted to 7.0% between 1957 and 1965 and 13.1% between 1965 and 1969. The national average rate of increase over the same periods amounted to 8.5% and 11.3%.² It should be noted that the rate of increase experienced in Alberta between 1965 and 1969 was the second highest in Canada (Newfoundland - 14.6%).

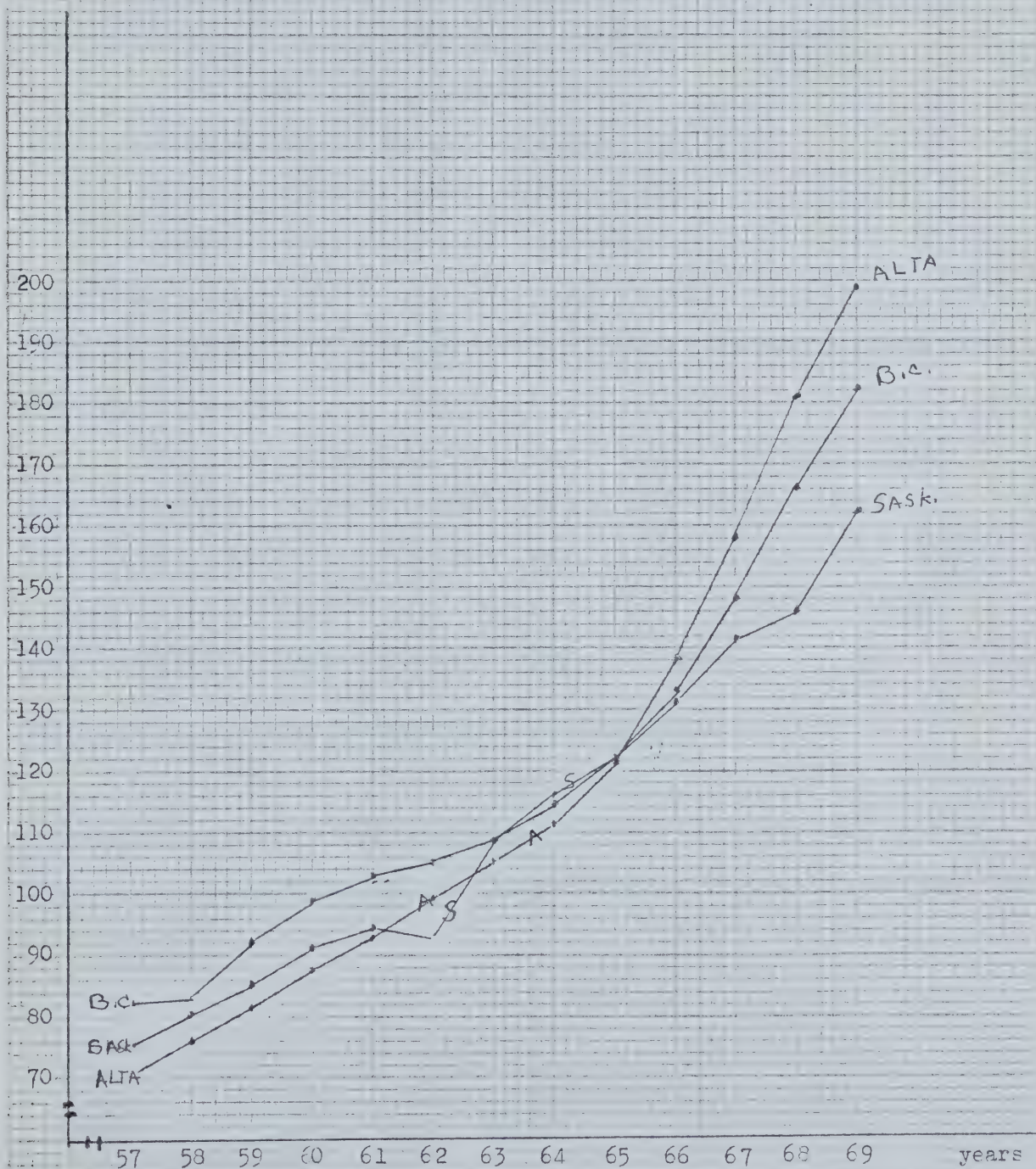
Reference to Graph 8 illustrates the relative performances of Alberta, British Columbia and Saskatchewan over this period. Note that Alberta moved from a position as the province with the lowest to one with the highest expenditure per capita on personal health care services. On a national basis only the province of Ontario exceeded Alberta--\$204.50 vis-a-vis \$198.99 per capita.

¹"Expenditures on Personal Health Care in the Provinces of Canada 1957-69", Research and Statistics Memo, Department of Health and Welfare, Ottawa, Feb. 17, 1971.

²It should be noted that the percentage increases are expressed in average and not compound rates of increase.

Graph 8 - Per Capita expenditures on total personal health services in
Alberta, B.C. and Saskatchewan (1957-69).

\$ per
capita



CHANGES IN THE EXPENDITURE PATTERN

It has been demonstrated that Alberta has the highest level of expenditure per capita on total personal health care services in western Canada. The next step is to dis-aggregate the total expenditure pattern.

In 1957 the pattern of expenditures per capita on personal health care services in Alberta was distributed in the following manner:

- (1) all hospitals approximately 57%;
- (2) expenditures on physicians' services 24.5%;
- (3) expenditures on prescribed drugs 10.7%;
- (4) expenditures on dentists' services 8.4%.

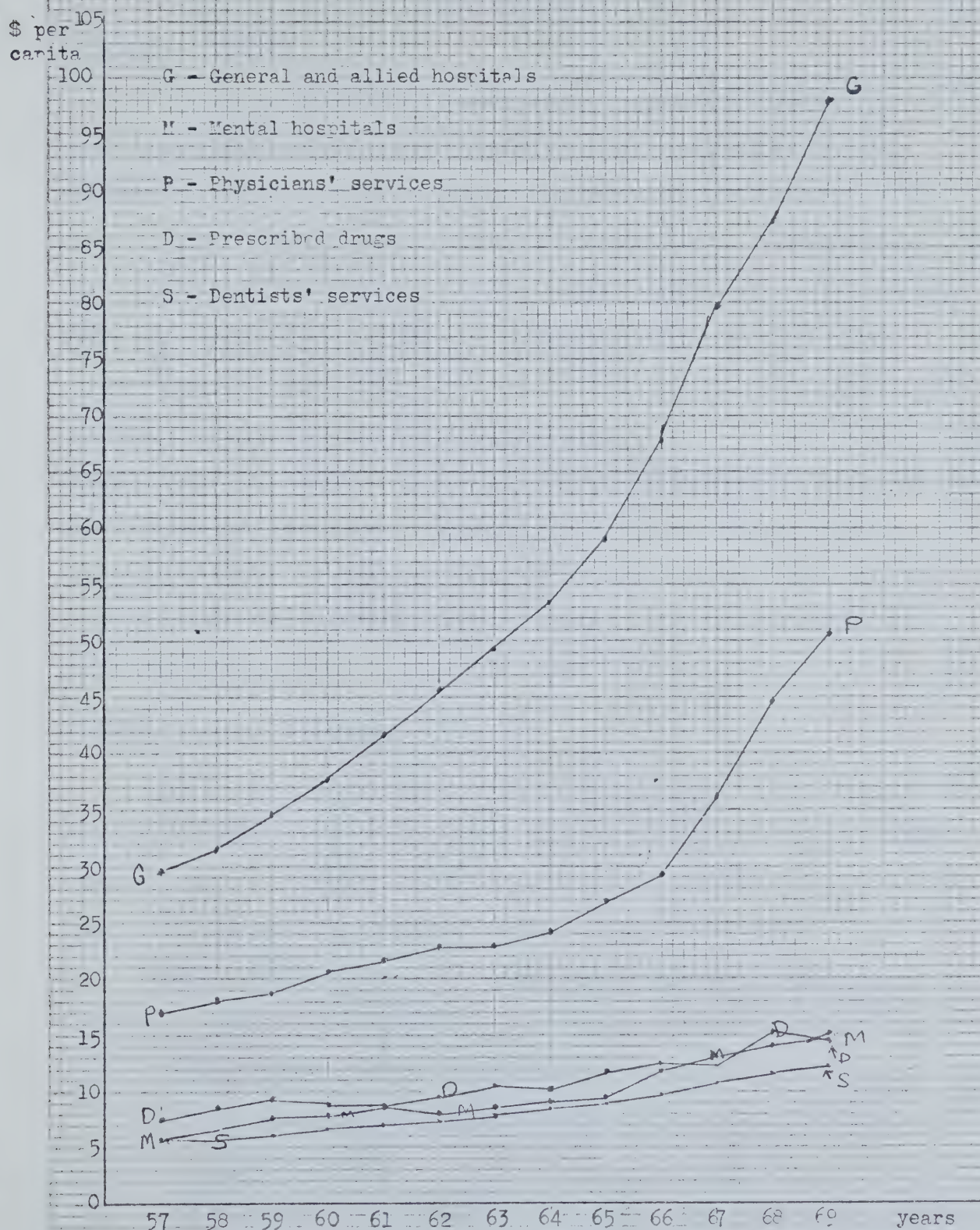
In 1969 approximately 61% of total per capita expenditures were on hospitals, 25.2% were on physicians' services, 6.0% on dentists' services and 7.3% were on prescribed drugs.

The major factors underlying the substantial rise in total per capita expenditures on personal health care are illustrated by Graph 9. It is evident that increases in expenditures on general and allied hospitals and physicians are the two major reasons why Albertans have experienced such substantial increases in total health care costs.

PER CAPITA EXPENDITURES ON HOSPITAL SERVICES IN ALBERTA

Between 1957 and 1965 per capita expenditures on hospital services increased at an average annual rate of 8.8%; however, between 1965 and 1969 this rate increased to 14.1%. Only Newfoundland and British Columbia had

Graph 9 - Per Capita expenditures on various components of personal health services in Alberta (1957-69).



higher or equal rates of increase between 1965 and 1969. (15.5 and 14.1%). The Canadian average for this period amounted to 13.0%.

PHYSICIANS' SERVICES

Per capita expenditures on physicians' services increased by approximately 295% between 1957 and 1969. (\$17.07 to \$50.42 per person) Reference to Graphs 10 and 11 indicate that 1965 marks the beginning of the "take off" period with respect to expenditures in this area. Between 1957 and 1969 the average annual percentage increase amounted to 5.9% between 1957 and 1961; 5.5% between 1961 and 1965 and 17.3% between 1965 and 1969. The average annual increase between 1965 and 1969 was in excess of anything experienced by any other province except Newfoundland. It should be noted that the average annual increases up to 1965 were approximately 1.3% lower than the Canadian average (6.8%); however, cognizance should be taken of the fact that the per capita expenditure on physicians' services in Alberta almost doubled between 1965 and 1969. Refer to Graph 12 for an illustration and comparison of these trends in the western provinces and Ontario.

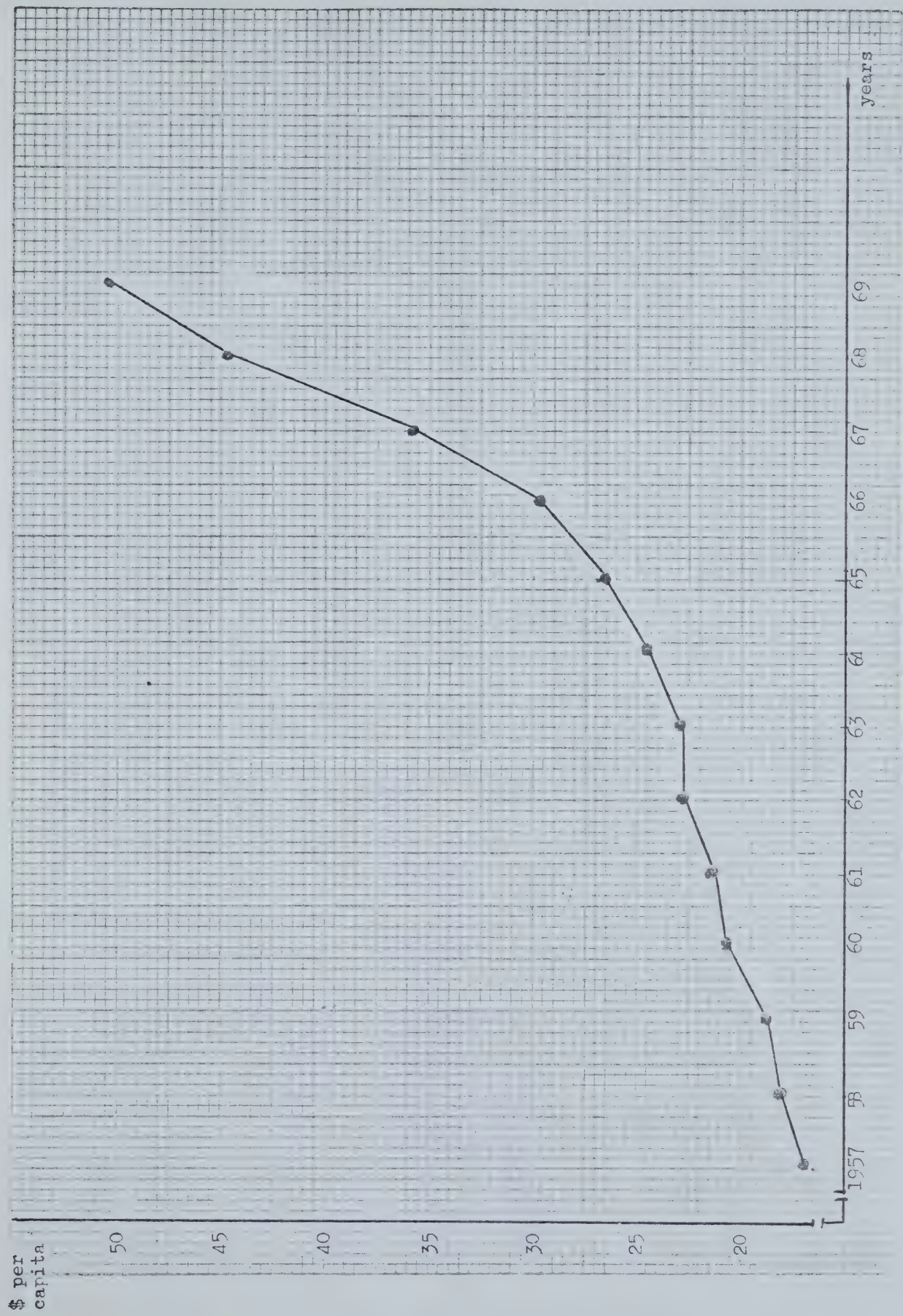
DENTISTS' SERVICES AND PRESCRIBED DRUGS

It is worth noting that per capita expenditures on dentists' services amounted to \$12.32 per person in 1969. This was the third highest in Canada. (\$15.46 in B.C. and \$14.23 in Ontario.) Per capita expenditures on prescribed drugs in Alberta were the highest in Canada. (\$14.57 percapita)

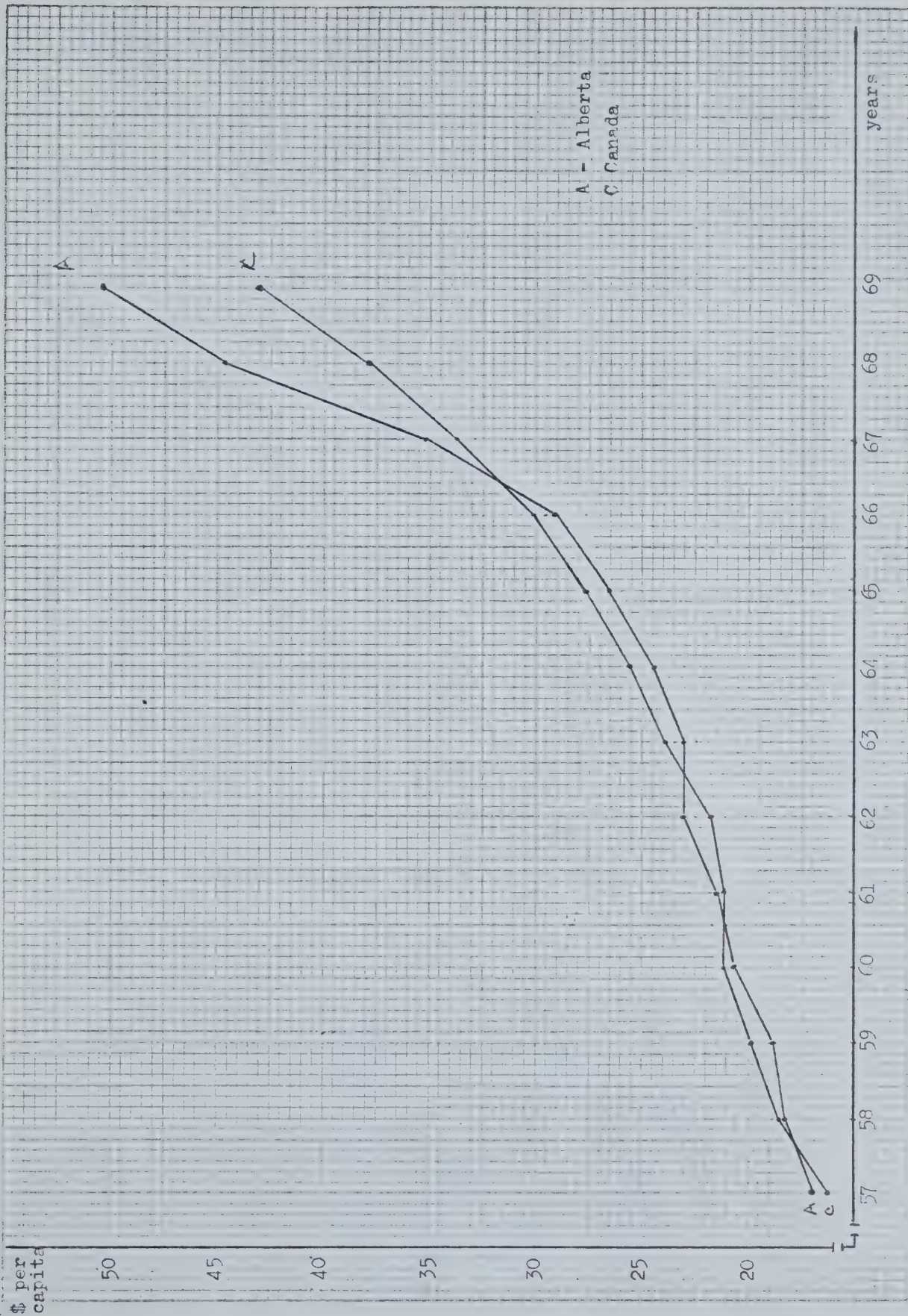
This brief overview of the trends and changes underlying personal health care expenditures between 1957 and 1969 indicates that Alberta has:

- (1) the highest per capita expenditures on prescribed drugs in Canada;
- (2) the second highest expenditure per capita on all hospitals in Canada (121.68);
- (3) the third highest expenditure on physicians' services per capita

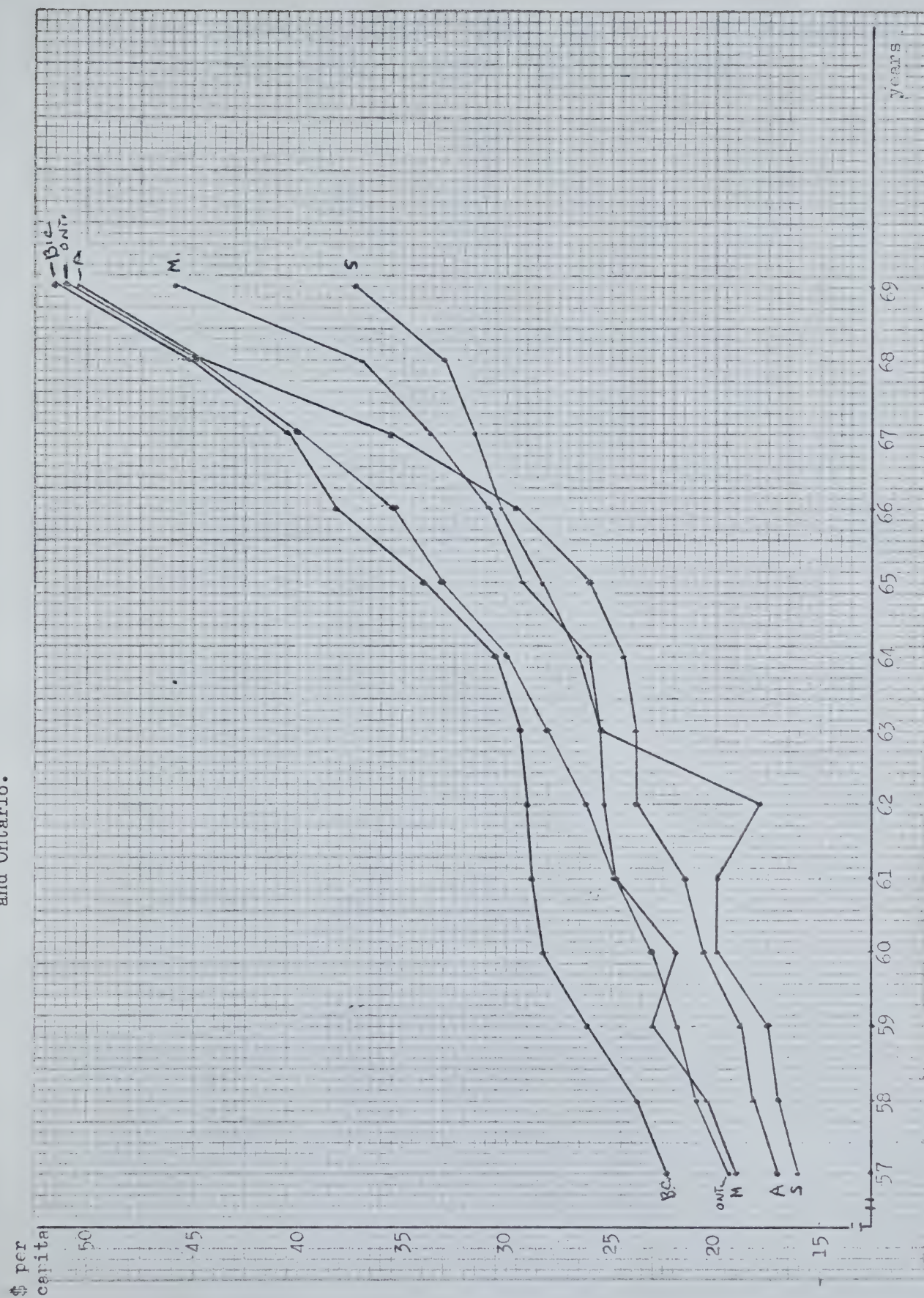
Graph 10--Per Capita Expenditure on Physicians' Services in Alberta (1957-69).



Graph 11--A comparison of per capita expenditures on physicians' services in Canada and Alberta (1957-69).



Graph 12 - A comparison of per capita expenditures on physicians' services in western Canada and Ontario.



(\$1.00 per capita difference between Alberta, B.C. and Ontario); and

(4) the third highest expenditure on dentists' services.

SECTION II

EXPENDITURES ON PHYSICIANS' SERVICES IN ALBERTA

Section I briefly outlined a number of the major trends in provincial and national expenditures on personal health care between 1957 and 1969. The following discussion consists of a reasonably comprehensive examination of expenditures on physicians' services.

Inter-provincial Comparisons of Personal Income and the Percentage of Personal Income Spent on Physicians Services

Expenditures on physicians' services must be related to the level of personal income¹ in a region in order to carry out meaningful inter-provincial comparisons.

Aggregate trends in personal income.

Between 1957 and 1969 total personal income in Canada increased from \$24.464 to \$61.234 billion--an increase of approximately 250%. During the same period total personal income in Alberta increased from \$1.707 to \$4.550 billion--an increase of approximately 267%. In per capita terms personal income in Canada increased from approximately \$1520 to \$2900 between 1957 and 1969--an increase of approximately 91%. The percentage increase in personal income per capita in Alberta amounted to 90.9%--from approximately \$1466 per capita in 1957 to approximately \$2800 in 1969.²

¹The dollar value of personal income measures all the income received by the residents of a particular region. It includes the factor incomes of persons, transfer payments and types of investment income accumulated on behalf of persons by life insurance companies, private pension funds and similar institutions.

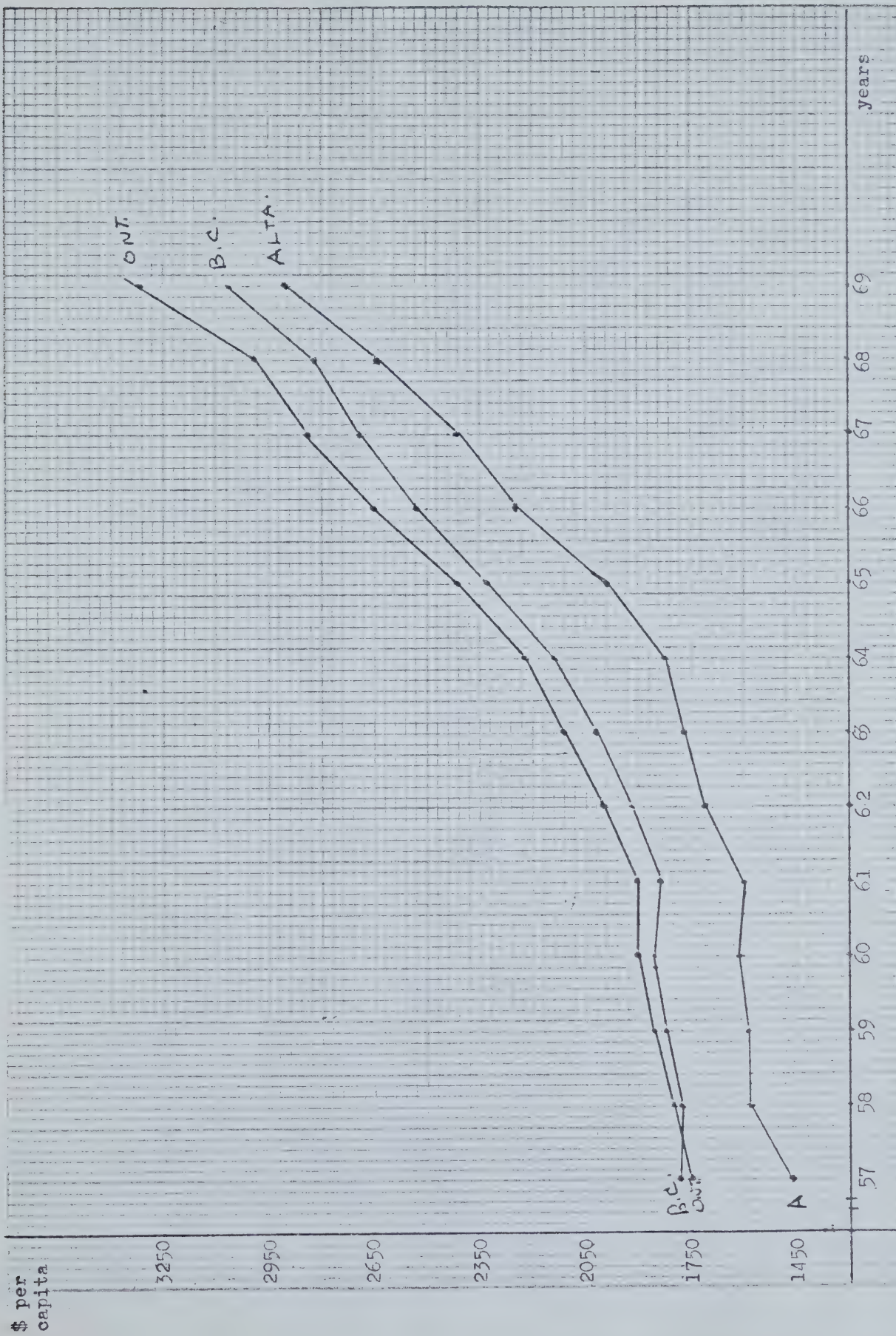
²Note that one reason for the relatively close relationship between the national and Alberta figures is that Alberta experienced a larger increase in its total population.

Ontario, British Columbia and Alberta have the highest per capita incomes in Canada. A comparison of the relative movements in personal income per capita in each of these three provinces is depicted by Graph 13. It should be noted that personal income per capita in Ontario and British Columbia are respectively 20% and 11.5% higher than in Alberta.

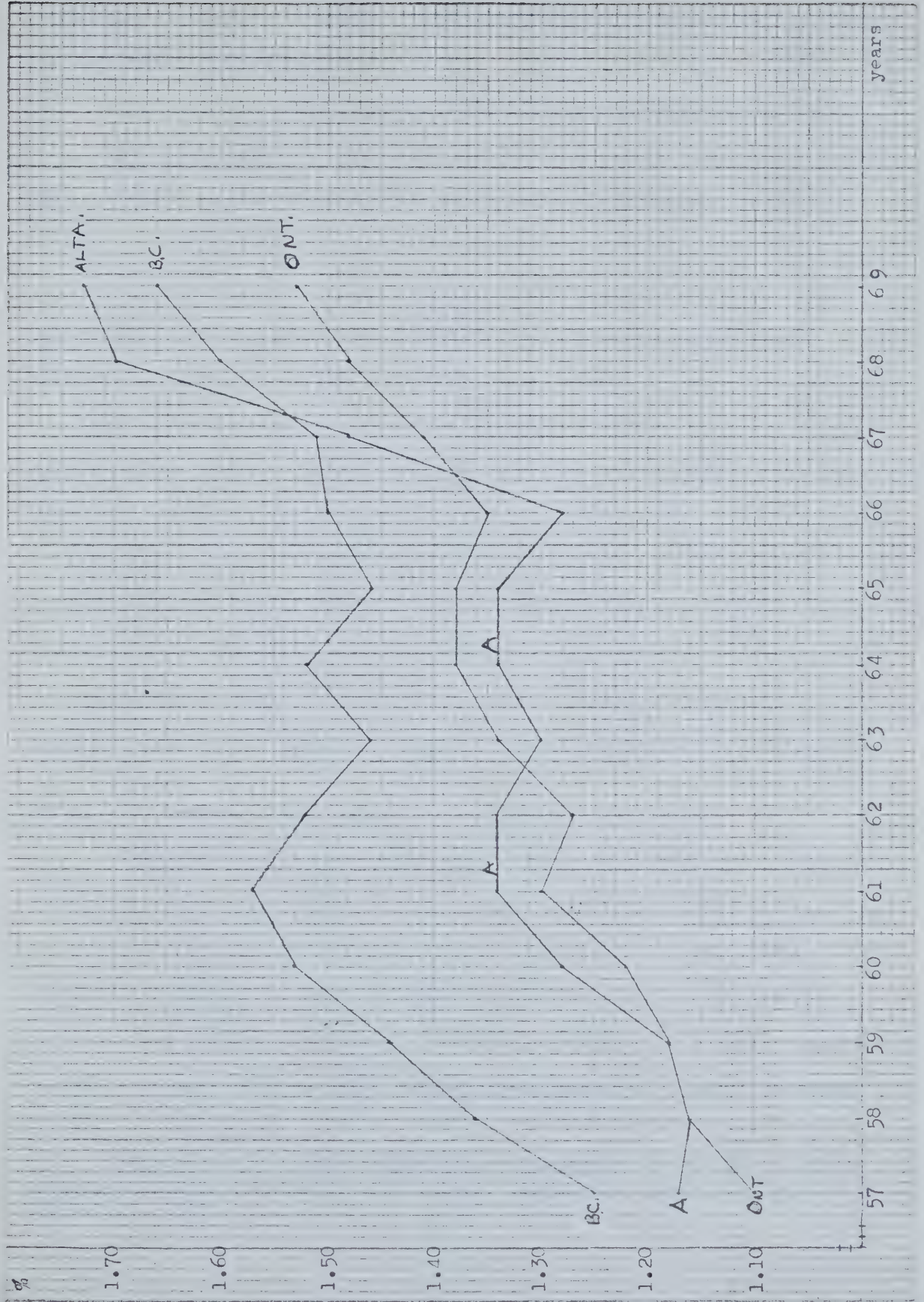
Graph 14 depicts the percentage of personal income spent on physicians' incomes in each of the three high income provinces. Alberta spent 1.73% of its personal income per capita on physicians' services in 1969. This was the largest percentage spent by any province in the Dominion of Canada. The "take off" in expenditures on physicians' services commenced in 1966. Between 1966 and 1969 the percentage of personal income spent on physicians' services increased by approximately 35%. This disparity between Alberta and the other two provinces may well be increased by 1970, given the upward adjustments in the fee schedule that occurred during that year.

One interesting comparison can be made by referring to Graphs 13 and 14. Graph 13 indicates Alberta has the lowest personal income per capita level of the three "rich" provinces while Graph 14 indicates it has the highest percentage of personal income spent on physicians' services. This implies that Albertans have the highest relative "burden" to bear in terms of the expenditures they must pay relative to the other two provinces. The magnitude of this "burden" can be compared by noting that in 1969 Albertans spent approximately 13% and 6.0% more of their personal income on physicians' services than the residents of the provinces of Ontario and British Columbia. In absolute terms this implies that if Alberta could have maintained the same ratio of expenditures on physicians' services to personal income as experienced in British Columbia they would have spent \$3.3 million less on physicians' services. If the Ontario ratio had been maintained the residents of Alberta

Graph 13 --A comparison of personal income per capita in Alberta, British Columbia and Ontario (1957-69).



Graph 14--A comparison of the percentage of personal income spent on physicians' services in Western Canada and Ontario (1957-69).



would have been able to minimize their expenditures on physicians' services by approximately \$9.1 million.

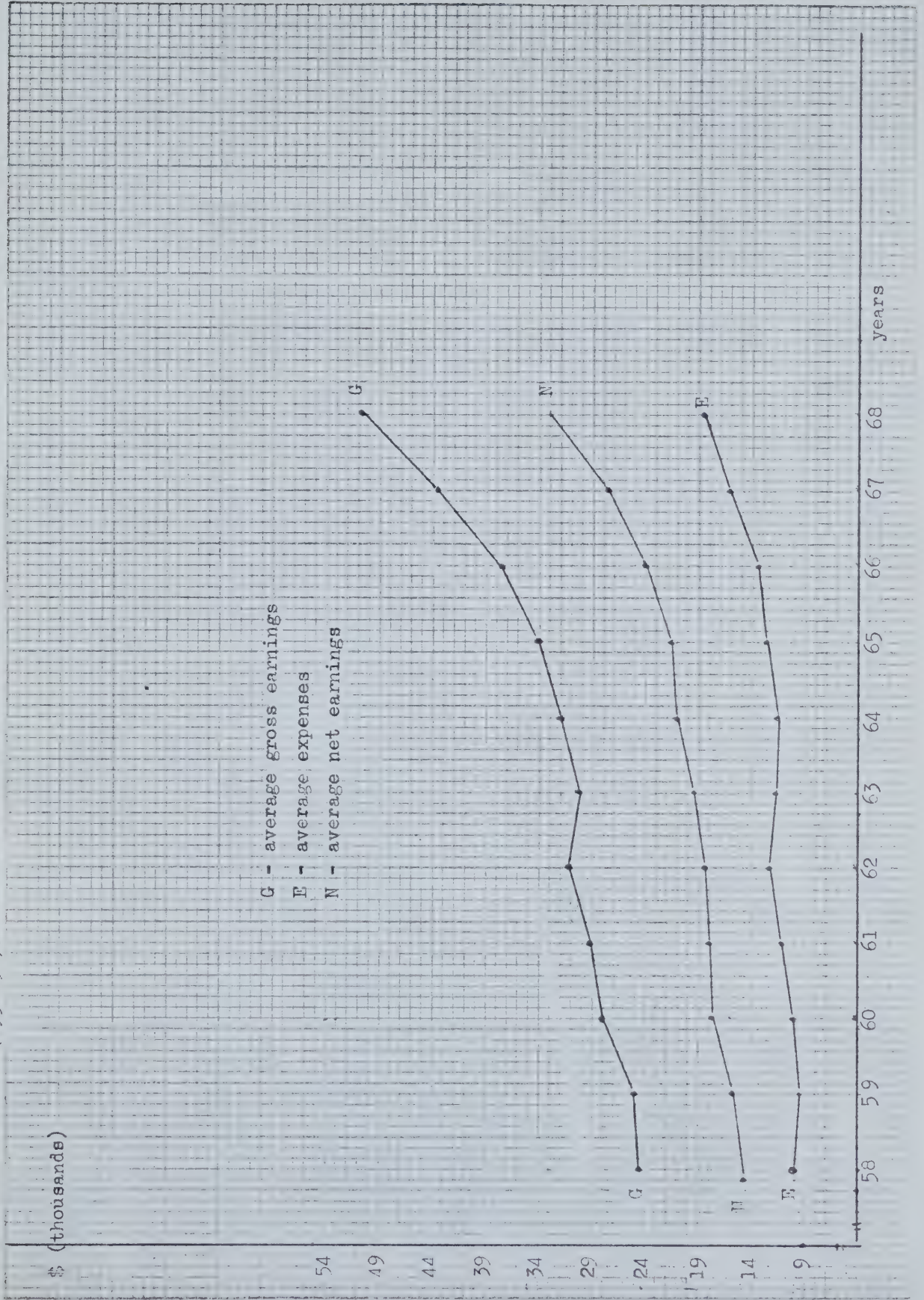
It should be noted that the "take off" period denoted by Graphs 10, 11, 12 and 14 occurred during the period when the Alberta Health Plan agreed to underwrite medical services for the majority of the residents in the province as set out by the physician operated M.S.I. plan. One would definitely expect to see an increase in per capita expenditures on health services as a greater number of individuals are covered by comprehensive medical care. The seemingly disturbing factor about the trends that we have examined is the degree to which medical expenditures have increased relative to per capita income. There is nothing sacred or "just" about a relative constancy between expenditures and personal income; however, given the rates of increase experienced in this province one must ask whether or not the medical profession in Alberta has set fee schedules which are in any sense "reasonable" or acceptable to the residents of this province. It is useful for the reader to keep this query in mind as he examines changes in the level of remuneration received by medical practitioners in the province.

Earnings of Medical Practitioners in the Province of Alberta

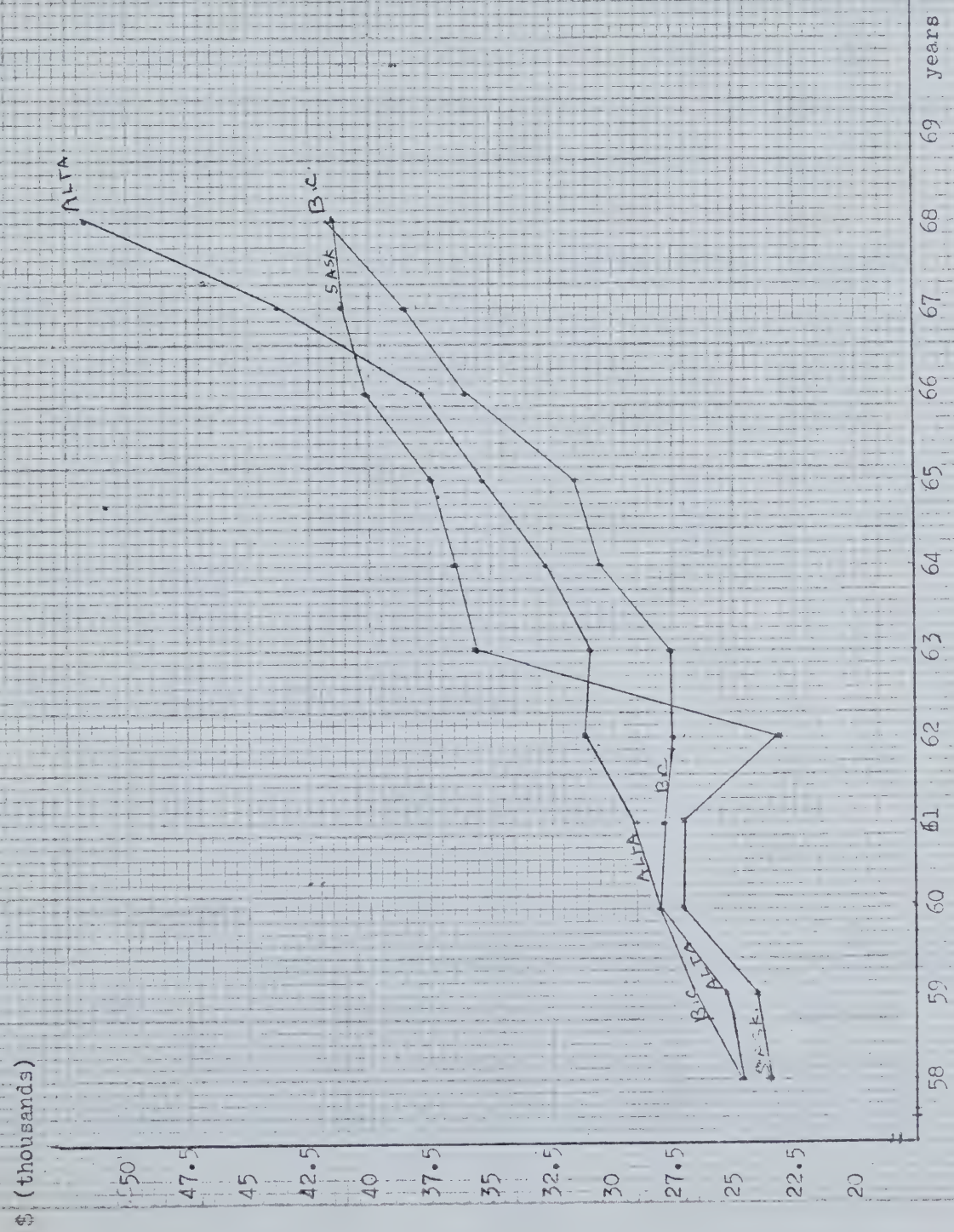
The "increase" in per capita expenditures on physicians' services noted in the above discussion is duly reflected in terms of the increases in the gross and net incomes received by practitioners in Alberta between 1957 and 1969. Reference to Graph 15 indicates the "take off" in the average gross and net incomes of active fee practise physicians in Alberta commenced in 1965. Between 1965 and 1968¹ average gross income in Alberta increased

¹Tables A-2, A-4, A-5, "Earnings of Physicians in Canada, 1958-68", Department of National Health and Welfare, Health Care Series No. 25, Ottawa, June 1970.

Graph 15-- A Comparison of average gross earnings, net earnings and average expenses of practice of active general practice physicians in Alberta (1958-68).



Graph -16. A comparison of average gross professional earnings of active fee practising physicians in B.C., Alberta and Saskatchewan, (1958-69).



from \$35,397 to \$51,894--an increase of approximately 46.5%. During the same period net incomes increased from \$22,681 to \$33,221 (approximately 46.5%). Average expenses of active fee practise physicians increased from \$12,716 to \$18,673--an increase of approximately 46.8%.

Graph 16 consists of a comparison between Saskatchewan, Alberta and British Columbia in terms of the relative trends in average gross professional earnings. It is clear that the rate of increase in Alberta exceeds the performance of practitioners in the other two provinces. The general reasons for the increase are increases in the prices charged and the quantity of services performed.

The net result of the trends outlined in Graphs 15 and 16 is that between 1958 and 1968 Alberta practitioners moved from a position in which they were third in terms of average gross income received per physician to a position in which they were the highest paid physicians in Canada. Practitioners received \$10,000.00 more in terms of average gross income per physician than their counterparts in British Columbia; \$10,000.00 more than practitioners in Saskatchewan; \$11,800.00 more than practitioners in Manitoba and \$4,400.00 more than physicians in Ontario.

Average Net Incomes by Specialty by Province

The foregoing trends in gross and net incomes received by medical practitioners were useful for indicating the "overall" positions of practitioners in various provinces; however, it is clearly impossible to understand the factors underlying these increases until the data is disaggregated. The following Table provides a limited amount of insight into the magnitude of the inter-provincial variation in average net incomes by speciality. It should be noted that indices for Ontario and pathology and radiology in Alberta have been omitted. The reason for the omission is due

SPECIALTY	N.F.D.	P.E.I.	N.S.	N.B.	QUE.	ONT.	MAN.	SASK.	ALTA.	B.C.	CANADA INDEX BASE
General Practice	80.8	76.2	77.3	82.3	70.0		87.5	81.7	96.6	78.0	85.4
Paediatrics	86.5		70.5	81.0	71.0		81.9	96.1	119.1	86.4	92.3
Internal Medicine	104.7		73.9	93.3	84.3		82.8	93.3	136.6	84.1	97.3
Psychiatry	128.3			82.5	79.8		91.7	75.7	94.2	80.3	91.3
Dermatology											
Anaesthesia			80.9	116.7	103.0		100.3	115.9	99.4	86.8	98.8
General Surgery	122.2		113.4	114.3	104.9		98.1	91.2	109.0	100.7	116.9
Card. & Thoracic Surgery					119.1				156.2	151.3	137.9
Othopaedic Surgery	149.1		92.4	132.1	138.2		100.9	116.1	157.9	120.6	146.6
Plastic Surgery					118.0			134.9	135.9	185.5	136.8
Neuro Surgery					126.4						
Obstetrics & Gynaecology			109.6	129.6	105.7		82.5	111.4	122.4	94.0	115.5
Urology			129.2	100.9	119.0		129.1	156.2	159.0	134.1	140.2
Ophthalmology			106.3		118.7		120.7	148.5	154.4	115.1	147.2
Otology				121.8	108.1		127.4	221.5	171.4	123.3	147.7
Ophth. & Otology			118.0	112.3	95.5				154.0	101.4	106.9
Radiology			93.7	161.2	122.9		120.3	131.2	**	128.6	133.5
Pathology											
ALL SPECIALTIES	102.5	77.5	86.0	96.6	87.3		93.8	91.9	114.0	89.5	100.0

* Pathology has the highest index for the province of Alberta.
 ** Radiology has the second highest index for the province of Alberta.
 * and ** because of the nature of these Specialties, the figures are not strictly comparable with the other specific index figures have been omitted.

Table 2 -- Average Net Professional Income of Medical Practitioners by Speciality in Alberta (1966 - 69) ^{1 2}

Speciality	1966 ⁴	1967	1968	1969
Pathology	35,800	70,309 (7)	119,000 (5)	-- (7) ³
Radiology	53,000	50,414 (27)	62,600 (28)	45,847 (30)
Otology	31,900	35,313 (15)	52,171 (17)	52,938 (15)
Urology	28,400	38,077 (13)	48,406 (13)	39,169 (16)
Orthopaedic Surgery	34,800	36,716 (27)	48,063 (26)	48,583 (31)
Cardio-vascular Thora Surgery	37,700	37,611 (8)	47,549 (9)	46,593 (6)
Ophthalmology	33,600	43,266 (17)	46,988 (23)	47,903 (33)
Ophthalmology & Otology	30,000	36,884 (14)	46,889 (10)	43,418 (5)
Internal Medicine	27,500	30,312 (65)	41,589 (64)	38,631 (68)
Plastic Surgery	34,100	38,110 (7)	41,360 (8)	55,855 (8)
Neuro Surgery	31,600	40,538 (9)	39,317 (6)	44,874 (9)
Obstetrics & Gynaecology	26,600	31,037 (44)	37,272 (57)	42,350 (55)
Paediatrics	22,400	31,222 (22)	36,238 (23)	39,236 (24)
General Surgery	24,200	28,662 (80)	33,180 (69)	32,874 (90)
Anaesthesia	23,200	25,523 (45)	30,244 (48)	32,607 (50)
General Practise	20,700	24,376 (461)	29,389 (532)	29,251 (536)
Psychiatry	22,400	23,392 (26)	28,677 (28)	33,742 (32)

¹Compiled from unpublished tables produced by the Department of National Health and Welfare, Ottawa.

²The brackets () indicate the number of practitioners in the sample.

³The 1969 figure is not available at the present time. As noted previously "moral or immoral" suasion seems to have played a large role in restricting the publication of this figure.

⁴The Number of practitioners in each speciality is not readily available for 1966; however, this information can be obtained if and when it is required. Note that the figures in this column are "rounded off".

Table 3--Percentage changes in average net incomes by speciality in Alberta
1966-69.¹

Speciality	Percentage Change				
	1966- 1967	1967- 1968	1968- 1969	1966- 1968	1966- 1969
G. P.	17.8	20.5	- 0.4	42.0	41.4
Paediatrics	39.3	16.0	8.1	61.8	75.0
Internal Med.	10.2	37.3	- 7.2	51.3	39.5
Psychiatry	4.5	22.6	17.7	28.1	50.6
Anaesthesia	9.9	18.4	7.8	30.2	40.4
Cardio & Thoracic Surgery	- 0.3	26.3	- 2.1	26.0	23.5
General Surgery	18.6	15.7	- 1.0	37.2	35.8
Ortho. Surgery	5.5	31.1	1.0	38.2	39.6
Plastic Surgery	11.7	8.7	35.0	21.4	63.4
Neurosurgery	28.2	- 3.0	14.0	24.4	42.0
Obst. & Gyn.	16.5	20.3	13.6	40.2	59.2
Urology	34.2	27.0	-19.0	70.4	37.9
Ophthalmology	28.9	8.5	2.0	39.9	42.6
Otology	10.7	47.9	1.2	63.6	63.9
Opthal. & Otol.	23.0	27.1	- 6.3	56.3	-44.5
Radiology	- 4.9	24.2	-26.8	18.1	-13.5.
Pathology	96.4	69.3	N.A.	232.4	N.A.

¹These percentage changes will differ slightly from calculations based on the entries in Table II due to rounding.

to 'moral' suasion on the part of the association and certain specialists. Despite the limitations with respect to: (1) provincial coverage; (2) the time span covered (only one year) and (3) the use of index numbers, the table indicates that in 1968 Alberta virtually led all of the provinces in western Canada in terms of the level of average net income paid to medical specialists. Exceptions to this generalization are found in the following specialities: (1) Anaesthesia; (2) Plastic Surgery; (3) Otology. In a number of instances the differentials--net income received in Alberta vis-a-vis other western provinces--are staggering. It is clear that it is absolutely essential to receive comprehensive information with respect to the underlying differences in prices, quantity of services performed and the supply of specialists which account for these substantial inter-provincial differences in net income.

Average Net Incomes of Practitioners in Alberta by Speciality

Tables II and III indicate the relative levels and percentage changes in the average net income received by practitioners in Alberta. There are a number of factors underlying the very substantial increases in net incomes. The first point to note is that this period was characterized by upward adjustments in the fee schedules under both M.S.I. and the A.H.I.C. Secondly, the advent of the A.H.I.P. and Medicare on July 1, 1969 virtually eliminated any "bad debts" incurred by practitioners. In addition the general growth of the population coupled with the removal of the "price barrier" led to an increased demand for medical services. Thirdly, changes in medical practise --the testing syndrome--led to an increase in the quantity of laboratory services and accompanying increase in the incomes of certain classes of specialists. Fourthly, it is suggested that under a comprehensive medical plan consumers attempt to obtain higher quality services. Since conventional

wisdom suggests that a greater degree of specialization can be equated with higher quality service it is quite possible that there has been a substantial rise in the demand for services provided by specialists in paediatrics, obstetrics, gynaecology and ophthalmology and psychiatry--i.e., a substitution of services previously provided by general practitioners. Fifthly, fluctuations will occur not only from changes in demand but also in supply. A substantial number of new entrants in any one speciality may decrease average net income or inhibit the rate of increase. (This depends in part on the freedom of access to hospital beds.)

One could list a number of additional factors. The main point to note is that at the present time we do not have sufficient information to undertake a quantitative analysis of the various factors which have influenced the supply of and demand for physicians' services prior to the advent of the A.H.I.C. The only "hard" data that we have consists of payments made for physicians' services and its mirror image the average gross and net income received by medical practitioners.

SECTION III

RESOURCE ALLOCATION IN MEDICAL SERVICE MARKETS

Resource Allocation in the Health Care Sector of the Economy

Sections I and II provide a brief overview of the levels of expenditures which have been made on health services. Various types of comparisons were made with respect to inter-specialty and inter-regional differences in the levels of gross and net income received by certain types of medical practitioners. This information is useful for descriptive purposes in the sense that it provides a partial set of quantitative measurements which illustrate a number of the factors responsible for the substantial rise in expenditures on physicians' services. Unfortunately it is not possible to obtain comparable data on the manner in which medical services are utilized. This is important if an attempt is to be made to relate the effects of regional differences in the availability and utilization of medical services to the underlying differences in regional morbidity and mortality patterns. In effect, it has been possible to break-down the costs that governments have incurred in providing additional quantities of medical services but it has not yet been possible to outline the benefits which have been received--decrease in morbidity or mortality by age, sex, region, etc.--from the consumption of these services.

It is suggested that the lack of "hard nosed" cost-benefit analyses is one of the major reasons why various levels of governments have begun to curtail the levels of expenditures which are made on a wide spectrum of health services. It is argued that the lack of such analyses is equated with the feeling that various members of the health professions would be unable to demonstrate that the ratio of benefits to costs in a number of programs were greater than zero. The net result has been the development of a basic conflict

in the health industry between what might be called the "treasury board" viewpoint--cut costs or hold the line regardless of benefits--and the "needs" viewpoint which is typified by the view that expenditures on any type or quantity of health services are a "good" thing; therefore, all that governments or the public should do is provide the funds required to fulfill "health care needs" as they are interpreted by various professional groups. It is clear that in a short run situation in which there is a paucity of cost-benefit analyses that one must adopt a modified treasury board point of view; however, it is equally clear that the formulation of sound health care policies must be based on appraisals of both the costs and benefits of various types of programs. This suggests that the approach that should be adopted towards improving the allocation of resources in the health field should be based on program budgeting and cost-benefit analyses (i.e. P.P.B.S. --Performance Program Budgeting Systems). This framework is the key block in formulating the criteria required to establish priorities in the health care field regardless of whether the system retains its highly decentralized flavour or adopts a more centralized and structured framework. It is suggested that one of many challenges faced by the Health Insurance and Hospital Commissions will be focussed around the question of adopting a rational set of policies based on the benefit-cost rather than the "treasury board" or "needs" approach to resource allocation.

The discussion to this point has briefly outlined the desirability of allocating health resources within a benefit-cost framework. The logic behind this approach is predicated on the observation that as resources are allocated on the basis that programs with the highest benefit-cost received the highest priority then Albertans' as a whole will obtain the maximum net benefits from a given financial outlay on health services. (Net benefits = Total benefits - Total costs) It is worth noting in passing that the pre-condition

for maximizing the net benefits obtained from any given budget outlay is the minimization of the cost of producing any given volume of health services. This is a useful point to remember since it is a basic "plank" in the technical array of any good administration; however, it should be noted that unless one explicitly considers the benefits of any program (i.e. the benefit-cost framework) one could be running a highly efficient program (least cost per unit of output) which was virtually worthless in terms of the benefits that were received by the individual members of society. The basic concern of the task force and a number of administrators is centered around the cost minimization approach. This is necessary; however, one suspects that once a benefit-cost framework is implemented and alternative methods of delivering various types of services are thoroughly considered we will find a number of highly efficient programs which are producing a minimal number of benefits (i.e. B/C < 1).

The Allocation of Medical Services

The principles laid down with respect to the allocation of health resources in general are equally applicable to the allocation of medical services. Medical services are said to be allocated in an optimal manner if Albertans receive the maximum net benefits from any given expenditure made by the A.F.I.C. If it is possible to provide a greater number of medical services for any given financial outlay (substitution of paid medical services for physicians' services) then one can conclude that there is a mis-allocation of resources and corrective action should be undertaken. This pre-supposes that the government has some type of effective control over the allocation of resources given the fact that it administers the funds which are collected from the public by way of various types of direct and indirect taxes. This has traditionally not been the case with respect to the provision of medical services. Effective control

has remained with the medical profession despite the fact that governments are responsible for the efficiency with which public funds are allocated. Recent events in the past year suggest that this situation will soon be rectified.

The analysis of the trends in expenditures on physicians' services in Canada along with the breakdown in inter-regional and inter-speciality trends in Alberta (Sections I and II) suggest that the greatest misallocation of resources in the medical service markets may have occurred in this province. This is a bit of a risky generalization given the fact that Albertans could be relatively healthier than residents of any other province since they spend more on physicians' services per capita than in other provinces. Given the lack of comprehensive mortality and morbidity studies one cannot resolve this problem in a concrete manner, however, casual empiricism suggests that there are no apparent inter-provincial differences.

Resource allocation under the fee-for-service system.

The fee-for-service system is the traditional method of paying physicians for services rendered to the consumer. There is nothing unusual about this system, since the majority of goods and services produced in a capitalist society are differentiated with respect to type, quality and price. (This also holds for an increasing number of commodities in a communist society). It is unusual to find this system operating in the public sector of any society since one of the main factors underlying the provision of goods and services by governments is the belief that the price mechanism seriously distorts the type and quantity of services that are produced. The other major reason for eliminating the use of the price mechanism is centered around the fact that the establishment of prices tends to exclude individuals from consuming commodities on the basis of their ability to pay for these goods or services. Given these considerations it is somewhat surprising to see that the fee-for-service system is still extant in what is clearly deemed to be a public sector of the economy.

Reference to Graphs 10, 11, 12, 14, 15 and 16 as well as Table 2 indicate that the gross and net revenue (income) of physicians as well as the per capita expenditures on physicians' services made by consumers virtually "took off" between 1966 and 1969. At first glance this situation is somewhat difficult to understand since the A.M.A. has had a substantial amount of experience in establishing prices prior to the implementation of the A.H.I.P. In effect, the problem of establishing the level of various prices in the fee schedule which bore some relationship to the number of physicians practising in various specialities as well as to the relative incomes of other professional groups seems to have been reasonably well handled prior to this date. One could argue about the amount of monopoly distortion involved in the prices administered by the medical profession; however, in a world of imperfect competition the relative performance of practitioners in this province seemed to be "reasonable". The performance from 1966 to the present seems to be hardly credible. It is suggested that there have been two major changes in the behaviour of both the profession and consumers which virtually requires the A.H.I.C. to directly interfere with the traditional manner in which the prices have been set and the way in which the quantity and type of medical services have been distributed.

The Inception of Income or Profit Maximizing Behaviour on the Part of Physicians

It is argued that between 1966 and the present time the aggregate behaviour of physicians has changed from that of a group dedicated to maximizing the quality of health services given a "satisfactory" level of net income (gross profits) to that of a group attempting to fulfill the twin objectives of maximizing both net income (gross profits) and the quality of health services. It could be argued that the current economic behaviour of medical practitioners is more in keeping with that of a group which is attempting to maximize net income subject to certain quality constraints; however, the point to note

regardless of the respecification question is that the behaviour of physicians has changed from one of "income satisficing" to one of income maximization. It is useful to outline the rationale underlying this change in behaviour.

The establishment of medical insurance schemes is the basic reason for the fee-for-service method has been allowed to exist. Prior to the establishment of insurance plans a discriminatory pricing policy was followed by physicians. This method tended to mitigate against some of the effects of the price mechanism in excluding patients on the basis of their ability to pay; however, as medical prices were raised, more and more individuals began to feel that they were medically indigent in the sense that the gap seemed to widen between what they perceived as their "need" for a certain quantity of medical services and their ability to pay for these services. The implementation of various types of insurance schemes finally culminating in medicare eliminated the "exclusion" feature of the price mechanism; however, physicians quickly discovered that as insurance coverage was extended to larger and larger portions of the population it became possible to raise their prices (the danger of excluding patients became less and less) and pursue the twin goals of income maximization and the maximization of the quality of medical care--maximization of the quality of medical care being considered as being synonymous with treating more patients or providing more services to the same group of patients or both.

The "Zero" Price Illusion of Consumers

It was argued that the introduction of comprehensive medical insurance schemes altered the behaviour of individual consumers as well as physicians. The shift in the behaviour of consumers rests on the following observations. Under the comprehensive payment scheme established in Alberta an individual consumer pays the same medical tax regardless of whether he visits a physician

once every day or once every five years. Once the tax is paid each consumer suffers from the illusion that medical services are virtually free goods despite the fact that the physician levies a tariff on every service that is performed. This "zero" price or free good illusion implies that other things being equal all consumers will tend to consume the volume of medical services that are commensurate with a zero price. (In reality the consumption patterns of some individuals will remain unchanged while others will vary widely.)

Resource Allocation Under Profit Maximization and a "Zero" Price Illusion.

It is suggested that the rapid escalation of expenditures on physicians' services accompanied by the very substantial increase in the net incomes of physicians between 1966 and 1969 is partially due to the income maximizing activities of physicians coupled with a proportionate rise in the volume of medical services demanded per consumer due to the "zero" price phenomena. (Clearly, a substantial portion of the increase in demand resulted from an increase in medical insurance coverage.) These changes in behaviour seem to agree with the actions of the A.M.A. in increasing the prices levied for medical services in a period where the increase in insurance coverage eliminated the ability of the price mechanism to ration the consumer's demand for scarce medical services. This is re-enforced by the continued rise in the differential between the average net incomes obtained by physicians as compared to other professional groups. In effect, there seemed to be little if any attempt to hold medical incomes at any of the previous norms.

The "zero" price illusion is a more tenuous conjecture which needs to be checked very thoroughly; however, it is felt that it has some substance given the fact that Saskatchewan and Great Britain have both imposed deterrent charges. This approach simply rests on the assumption that a small positive price will impose some real restrictions on the quantity demanded, (i.e. partially dispel the illusion). The imposition of charges on the use of hospitals

in this province is another example of an attempt that has been made to deal with the same phenomena.

It is suggested that the existence of income or profit maximizing behaviour on the part of medical practitioners coupled with the "zero" price illusion which accompanied the imposition of a comprehensive insurance scheme has for all intents and purposes made it necessary for the A.H.I.C. to intervene directly in the way resources are allocated in the medical services markets. This argument is based on the observation that effective control over the type and quantity of medical services that are produced (i.e. the supply of different types of specialists) as well as the level of expenditures is determined by the group which sets and adjusts the prices of medical services. The "zero" price illusion effectively implies that the demand for medical services will always be equal to the supply of medical practitioners (i.e. services). This is most unusual given the way in which normal markets operate; however, it must be remembered that the market for medical services is highly abnormal. There are two basic reasons for this situation: (1) the prices established by the medical profession reflect the income maximizing interests of a cartel which forbids price competition; and (2) the existence of a comprehensive insurance scheme prevents the price mechanism from operating in such a way that it reflects the benefits that are received by consumers. In a highly competitive market in which there are a large number of producers and consumers the interaction between both groups determines a price which equates the benefits which the consumer feels he obtains from consuming the good or service with the costs of production and the "normal" profit level which entrepreneurs require to supply the service. (Note the producers attempt to maximize profits while the consumers attempt to maximize their satisfaction.) If any group of producers attempt to raise the price beyond the market clearing price they soon discover they cannot sell these services. Similarly, if any one consumer attempts to

consume a quantity of services or goods at less than the market price he will not be able to purchase them. In the present state of the medical service markets consumers act as though the prices of medical services were priced at a zero level--thus demanding all the services that are supplied--while producers can set any price level they desire (subject to their estimate of provoking a massive outcry from the public.) The net result of this state of affairs is reflected in a rapid escalation in the demand for medical services, a continual rise or attempt to increase prices, a continual spiral in health service expenditures and a rapid increase in the profit (net income) levels of medical entrepreneurs.

It is argued that prices, incomes and expenditures in the medical service market are seriously distorted. It is highly probable that a substantial portion of the funds spent on medical services are simply generating "abnormal" income levels for medical practitioners as well as indirectly placing increasing pressure on hospital facilities and costs. This suggests that serious consideration should be given towards the implementation of a set of indirect and direct controls which will attempt to achieve a more "optimal" allocation of resources. The recommendations contained in the following section outline some tentative thoughts that may be useful in establishing a monitoring system which could be used to implicitly or explicitly tie expenditures to a set of medical service programs which attempt to maximize the net benefits Albertans receive from their present level of expenditures on medical services. If the above appraisal is considered to be reasonably accurate it would seem that it is economically feasible--the political and social consequences are another matter--to obtain more benefits in terms of the quantity and type of medical services received for the same monetary outlay we are presently making on medical services.

SECTION IV

RECOMMENDATIONS

Introduction

The following set of recommendations should only be viewed as a tentative set of proposals that need to be explored at some length. The analysis set out in Sections I, II and III was carried out from a purely economic viewpoint. A number of candid observations and conclusions were made with respect to the apparent state of disarray in the medical service markets. It was noted that a number of the arguments made in Section III were based on a qualitative rather than a quantitative analysis. This is highly undesirable for a number of reasons not the least of which is that a number of observations could potentially be verified if recourse was made to the Commission Data Bank. A number of other relationships could not be obtained from any existing available sources.

The Commission will note that I have not answered the question that was posed some months ago; namely: "Is it feasible and/or desirable to establish an index which would serve as a basis for adjusting the level of payments made to medical practitioners in the Province of Alberta?" It was pointed out at that time that this would be a difficult question to resolve. The basic reason is that the adjustment of remuneration levels cannot be considered apart from the question of analysing the manner in which prices and the quantity of medical services are determined under the existing market structures. This in turn means that a detailed examination must be made of the various costs of production. The results of the work contained in Section III suggest that the existing prices, incomes and expenditures are so badly distorted that one would run the grave risk of devising adjustment mechanisms which would perpetuate the existing state of affairs. This seems to be somewhat undesirable; however, this is a value judgement on my part which may not

shared by the Commission.. If the Commission wishes to pursue this matter at greater length then some discussion should be held with the A.M.A. in terms of carrying out certain types of cost studies.

RECOMMENDATION I

Each of the twenty or more major categories of medical specialists should be considered as separate markets. The quantities of services and the prices charged should be delineated for each group, along with the gross payments made to each practitioner. Consultation should be made with Ottawa in order to obtain comparable data for purposes of carrying out inter-provincial comparisons. If the same trends seem to hold as indicated by the inter-provincial comparisons of net income differentials adjustments should be made to the set of prices until the average gross payments made to specialists in Alberta are at least reduced to the western Canadian or some pre-selected level. Discussions should be held with representatives of each specialty group along with the A.M.A. in order to ask for the specialists co-operation. If this is not obtained then A.H.I.C. should make some unilateral decreases in the rates of benefits. Full publication of the reasons for making the adjustments along with the renewal of the dialogue between patient and physician over prices could well serve as a sort of moral deterrent to those practitioners who were determined to charge what they thought were "just" fees.

Clearly there are a number of difficulties involved with implementing this type of a proposal (inter-provincial comparability between items listed in fees-for-schedule etc.); however, given the recent work that is being done at Ottawa with respect to reclassifying schedules, establishing price and quantity indices, and the release of detailed inter-provincial income (gross and net) figures, it seems that it would be possible to keep the expenditures on physicians' services in Alberta in line with those in other provinces.

RECOMMENDATION II

Each of the specialty markets should be examined with respect to the distribution of practitioners (medical services) and the overall accessibility consumers have to these services. In effect, regional differences in the utilization of services should be examined within and between specialties. Differential pricing, a guaranteed minimum gross income or a "bonus" might be offered to entice practitioners to areas where the levels of services seem to be below provincial averages or some other pre-selected standard.

RECOMMENDATION III

Various regions of the province which seem to act as catchment areas along with the province as a whole, should be examined in terms of the effectiveness increased expenditures on certain types of services have an overall morbidity and mortality patterns. Some interesting benefit cost analysis could be done in this area, particularly as one examined alternative methods of delivering certain types of services.

RECOMMENDATION IV

Some additional thought should be given to the problem of dispelling the zero price illusion held by consumers. One method that might be considered is to supply each consumer with a medical services credit card. The consumer would sign a medical bill only after the quantity and price of the services performed were noted.

This may not be a feasible idea, however, it is clear that additional work must be done in establishing the relationship between the magnitude of medical taxes, the prices charged for services and the quantity of services performed. Some recent work done in Saskatchewan indicates that the imposition of a deterrent fee only decreases the demand for medical services for a short period of time. Clearly this question needs to be examined.

RECOMMENDATION V

Some consideration should be given to instituting a two price system for sets of services that could be performed within the hospital or within an office. Similar considerations should be given with respect to admitting people on an in-patient as compared to an out-patient basis. Changes in prices of a set of services that was judiciously selected could potentially have more effect on hospital costs than a number of controls imposed at the local hospital level.

RECOMMENDATION VI

Studies should be carried out on the pattern of life time earnings generated within each medical specialty. Once the number of working years and income generated over the life time of an active practitioner had been determined it would be possible to discount the over-all income in order to arrive at the discounted present value of earnings generated in each specialty. Comparisons of inter-specialty present values would tend to provide some type of a quantitative guide to the extent of the differentials existing between groups with approximately the same number of years of training. This method would also allow one to carry out inter-occupational comparisons.

Studies of this nature would provide a basis for arguments centered around the rationalization of the relative incomes received by medical practitioners.

It is evident that the above suggestions are not "new" to the health care field; however, the method of implementing a number of changes by adjusting the prices of various services performed in each specialty may be of some interest. The fee-for-service system has its benefits as well as its costs. Much of the discussion has been centered around the cost aspect; however, the adjustment of various prices may well be the key in obtaining a least cost method of effectively allocating scarce health resources. The

problem in the past has been that medical prices have been administered by basically one group. Prices tended to be relatively inflexible other than for periodic adjustments which generally tended to be in an upward direction. If it is possible to introduce some degree of flexibility into these prices then the potential exists for conveying a maximum amount of information with a minimum amount of bureaucratic effort and delay. It would be extremely interesting to see if this end could be achieved.



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